Radiation and Environmental Biophysics

CONTENTS OF VOLUME 36 · 1997/98

Editor-in-Chief

A. M. Kellerer, Neuherberg, München

Managing Editor

T. Roedler-Vogelsang, München

Editorial Board

D. Averbeck, Paris
W. Burkart, Neuherberg
V. Covelli, Rome
D. Frankenberg, Göttingen
U. Hagen, München
P. Hall, Stockholm
D. Harder, Göttingen
G. Iliakis, Philadelphia, PA
V. K. Ivanov, Obninsk
H. Jung, Hamburg
J. Kiefer, Giessen
G. Kraft, Darmstadt
J. Michaelis, Mainz
W.-U. Müller, Essen
L. H. F. Mullenders, Leiden
H. G. Paretzke, Neuherberg
H. H. Rossi, Upper Nyack, NY
J. W. Stather, Didcot, Oxon
J. E. Turner, Oak Ridge, TN
B. V. Worgul, New York

Springer

Radiation and Environmental Biophysics

The Journal Biophysik, edited by B. Rajewsky, was founded in 1963. With Volume 11 (1974) the name Radiation and Environmental Biophysics was adopted. H. Muth was Managing Editor from Volume 7 (1970) to Volume 18/1 (1980), U. Hagen from Volume 18/2 (1980), and U. Hagen and A. M. Kellerer jointly from Volume 33/3 (1994).

Springer

Copyright

Submission of a manuscript implies that the work described has not been published before (except in the form of an abstract or as part of a published lecture, review, or thesis); that it is not under consideration for publication elsewhere; that its publication has been approved by all coauthors, if any, as well as by the responsible authorities at the institute where the work has been carried out; that, if and when the manuscript is accepted for publication, the authors agree to automatic transfer of the copyright to the publisher; and that the manuscript will not be published elsewhere in any language without the consent of the copyright holder.

All articles published in this journal are protected by copyright, which covers the exclusive rights to reproduce and distribute the article (e.g., as offprints), all translation rights as well as the rights to publish the article in any electronic form. No material published in this journal may be reproduced photographically or stored on microfilm, in electronic data bases, video disks, etc., without first obtaining written permission from the publisher.

The use of general descriptive names, trade names, trademarks, etc., in this publication, even if not specifically identified, does not imply that these names are not protected by the relevant laws and regulations.

While the advice and information in this journal is believed to be true and accurate at the date of its going to press, neither the authors, the editors, nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Special regulations for photocopies in the USA: Photocopies may be made for personal or in-house use beyond the limitations stipulated under Section 107 or 108 of U.S. Copyright Law, provided a fee is paid. All fees should be paid to the Copyright Clearance Center, Inc., 21 Congress Street, Salem, MA 01970, USA, stating the ISSN 0301-634X, the volume, and the first and last page numbers of each article copied. The copyright owner's consent does not extend to copying for general distribution, promotion, new works, or resale. In these cases, specific written permission must first be obtained from the publisher.

The Canada Institute for Scientific and Technical Information (CISTI) provides a comprehensive, world-wide document delivery servies for all Springer-Verlag journals. For more information, or to place an order for a copyright-cleared Springer-Verlag document, please contact Client Assistant Document Delivery, Canada Institute for Scientific and Technical Information, Ottawa K1A OS2, Canada (Tel: (613) 993-9251; Fax: (613) 952-8243; e-mail: cisti.docdel@nrc.ca).

Printers

Konrad Triltsch, Druck- und Verlagsanstalt Würzburg GmbH, Würzburg, Germany

© Springer-Verlag Berlin Heidelberg 1998
Springer-Verlag GmbH & Co. KG
Berlin, Germany

Printed in Germany

Contents of Volume 36 · 1997/98

Abylkassimova ZN → Gusev BI
Alexakhin RM → Bunzl K
Andres R → Menz R
Andres RY → Riesen TK
Apsalikov KN → Gusev BI
Arkhipov NP → Bunzl K

Bartell SM → Rochedo ERR
Belov G → Garger EK
Beresford NA → Crout NMJ
Beresford NA → Howard BJ
Besnus F → Garger EK
Bhattacharjee D, Rajan R, Krishnamoorthy L, Singh BB: Effects of lithium chloride as a potential radioprotective agent on radiation response of DNA synthesis in mouse germinal cells 125
Biryukov AP → Ivanov VK
Blattmann H → Crompton NEA
Blettner M → Zeeb H
Boice JD Jr, Holm L-E: A response to: 'Leukaemia and thyroid cancer in emergency workers of the Chernobyl accident: Estimation of radiation risks (1986–1995)' 213
Borkovec V → Pöschl M
Bunzl K, Jacob P, Schimmack W, Alexakhin RM, Arkhipov NP, Ivanov Y, Kruglov SV: ^{137}Cs mobility in soils and its long-term effect on the external radiation exposure 31

Cheong N → Wang Y
Chepurny NI → Goulko GM
Chow TY-K → Lehnert S
Conti LFC → Rochedo ERR
Crompton NEA, Emery GC, Shi Y, Sigg M, Blattmann H: Radiation-induced genetic instability: no association with changes in radiosensitivity or cell cycle checkpoints in C3H 10T1/2 mouse fibroblasts 255
Crompton NEA → Menz R
Crout NMJ → Howard BJ
Crout NMJ, Mayes RW, Beresford NA, Lamb CS, Howard BJ: A metabolic approach to simulating the dynamics of C-14, H-3 and S-35 in sheep tissues 243

Degteva MO → Tolstykh EI
Demchuk V → Garger EK
Drozdovitch VV, Goulko GM, Minenko VF, Paretzke HG, Voigt G, Kenigsberg YaI: Thyroid dose reconstruction for the population of Belarus after the Chernobyl accident 17

Efendiev VF → Ivanov VK
Egli J → Riesen TK
Emery GC → Crompton NEA

Garger EK, Kashpur V, Belov G, Demchuk V, Tschiersch J, Wagenpfeil F, Paretzke HG, Besnus F, Holländer W, Martinez-Serrano J, Vintersved I: Measurement of resuspended aerosol in the Chernobyl area. I. Discussion of instrumentation and estimation of measurement uncertainty 139
Garger EK, Kashpur V, Paretzke HG, Tschiersch J: Measurement of resuspended aerosol in the Chernobyl area. Part II. Size distribution of radioactive particles 275
Gorsky AI → Ivanov VK
Goulko G → Sobolev B
Goulko GM, Chepurny NI, Jacob P, Kairo IA, Likhtarev IA, Pröhl G, Sobolev BG: Thyroid dose and thyroid cancer incidence after the Chernobyl accident: assessments for the Zhytomyr region (-Ukraine) 261
Goulko GM → Drozdovitch VV
Greinert R, Harder D: Biophysical analysis of the dose-dependent overdispersion and the restricted linear energy transfer dependence expressed in dicentric chromosome data from alpha-irradiated human lymphocytes 89
Grosche B: Reply to the Letter to the Editor by Scherb et al.: 'Comments on perinatal mortality in Bavaria, Germany, after the Chernobyl accident' 299
Grosche B, Irl C, Schoetzau A, van Santen E: Perinatal mortality in Bavaria, Germany, after the Chernobyl reactor accident 129
Gusev BI, Abylkassimova ZN, Apsalikov KN: The Semipalatinsk nuclear test site: a first assessment of the radiological situation and the test-related radiation doses in the surrounding territories 201

Hamm RN, Turner JE, Stabin MG: Monte Carlo simulation of diffusion and reaction in water radiolysis – a study of reactant 'jump through' and jump distances 229
Hansen HS → Howard BJ
Harder D → Greinert R
Heidenreich WF, Jacob P, Paretzke HG: Exact solutions of the clonal expansion model and their application to the incidence of solid tumors of atomic bomb survivors 45
Heidenreich WF, Paretzke HG, Jacob P: No evidence for increased tumor rates below 200 mSv in the atomic bomb survivors data 205
Heidenreich WF, Paretzke HG, Jacob P: Reply to the 'Commentary' by D. A. Pierce and D. L. Preston 211
Heidenreich WF → Sobolev B
Holländer W → Garger EK
Holm L-E → Boice JD Jr
Hove K → Howard BJ
Howard BJ, Beresford NA, Mayes RW, Hansen HS, Crout NMJ, Hove K: The use of dietary calcium intake of dairy ruminants to predict the transfer coefficient of radiostrontium to milk 39
Howard BJ → Crout NMJ

Iliakis G → Wang Y
Irl C → Grosche B
Ito A → Tomita H
Ivanov VK: Response to the Letter to the Editor by J. D. Boice and L.-E. Holm 305
Ivanov VK → Pitkevitch VA
Ivanov VK, Tsyb AF, Gorsky AI, Maksyutov MA, Rastopchin EuM, Konogorov AP, Korelo AM, Biryukov AP, Matyash VA: Leukaemia and thyroid cancer in emergency workers of the Chernobyl accident: Estimation of radiation risks (1986–1995) 9
Ivanov VK, Tsyb AF, Nilova EV, Efendiev VF, Gorsky AI, Pitkevich VA, Leshakov SY, Shiryaev VI: Cancer risks in the Kaluga oblast of the Russian Federation 10 years after the Chernobyl accident 161
Ivanov Y → Bunzl K

Jacob P → Bunzl K
Jacob P → Goulko GM
Jacob P → Heidenreich WF
Jacob P → Sobolev B

Kai M → Tomita H
Kairo I → Sobolev B
Kairo IA → Goulko GM
Kashpur V → Garger EK
Kellerer AM: Fallacies of numerology 215
Kellerer AM, Nekolla E: Neutron versus γ-ray risk estimates. Inferences from the cancer incidence and mortality data in Hiroshima 73
Kellerer AM → Scholz M
Kenigsberg YaI → Drozdovitch VV
Konogorov AP → Ivanov VK
Körblein A, Küchenhoff H: Perinatal mortality in Germany following the Chernobyl accident 3
Körblein A, Küchenhoff H: Response to the Letter to the Editor by H. H. Rossi 301
Korelo AM → Ivanov VK
Kozheurov VP → Tolstykh EI
Kraft G → Scholz M
Kraft-Weyrather W → Scholz M
Krishnamoorthy L → Bhattacharjee D
Kruglov SV → Bunzl K
Küchenhoff H → Körblein A
Kusama T → Tomita H

Lamb CS → Crout NMJ
Larsson B → Menz R
Lehnert S, Chow TY-K: Low doses of ionizing radiation induce nuclear activity in human tumour cell lines which catalyses homologous double-strand recombination 67
Leshakov SY → Ivanov VK
Likhtarev I → Sobolev B
Likhtarev IA → Goulko GM

Maksyoutov MA → Pitkevitch VA
Maksyutov MA → Ivanov VK

2 347HI XL 262
7/99 31249-200 NU'LB

Martinez-Serrano J → Garger EK
Matiash VA → Pitkevitch VA
Matyash VA → Ivanov VK
Mayes RW → Crout NMJ
Mayes RW → Howard BJ
Menz R, Andres R, Larsson B, Ozsahin M, Trott K, Crompton NEA: Biological dosimetry: the potential use of radiation-induced apoptosis in human T-lymphocytes 175
Merzagora M → Ottolenghi A
Minenko VF → Drozdovitch VV
Miura M → Wang Y

Nekolla E → Kellerer AM
Nilova EV → Ivanov VK

O'Riordan MC: Becquerel's legacy: a century of radioactivity 96
Ottolenghi A, Merzagora M, Paretzke HG: DNA complex lesions induced by protons and α-particles: track structure characteristics determining linear energy transfer and particle type dependence 97
Ozsahin M → Menz R

Paretzke HG → Drozdovitch VV
Paretzke HG → Garger EK
Paretzke HG → Heidenreich WF
Paretzke HG → Ottolenghi A
Paretzke HG → Rochedo ERR
Pierce DA, Preston DL: on: 'No evidence for increased tumor rates below 200 mSv in the atomic bomb survivors data' 209
Pitkevich VA → Ivanov VK
Pitkevitch VA, Ivanov VK, Tsyb AF, Maksyoutov MA, Matiash VA, Shchukina NV: Exposure levels for persons involved in recovery operations after the Chernobyl accident. Statistical analysis based on the data of the Russian National Medical and Dosimetric Registry (RNMDR) 149
Pöschl M, Borkovec V, Zelenka J: Dynamics and distribution of radiocaesium in broiler chicken 169
Preston DL → Pierce DA
Pröhl G → Goulko GM

Rajan R → Bhattacharjee D
Rastopchin EuM → Ivanov VK
Riesen TK, Egli J, Andres RY: Experimentally determined translocation of ^{134}Cs in potatoes. Comparison with the radioecological model ECOSYS-87 and literature data 293
Rochedo ERR, Conti LFC, Bartell SM, Paretzke HG: PARATI – a dynamic model for radiological assessments in urban areas. Part III: Parameter uncertainty analysis 285
Rochedo ERR, Conti LFC, Paretzke HG: PARATI – A dynamic model for radiological assessments in urban areas. Part II. Specifications of individuals and populations, their radiation exposures and variabilities 183
Roos H, Schmid E: Analysis of chromosome aberrations in human peripheral lymphocytes induced by 5.4 keV x-rays 251
Rossi HH: A response to „Perinatal mortality in Germany following the Chernobyl accident" 137
Rossi HH: Reply to the Letter by Körblein and Küchenhoff 303
Rossi HH, Zaider M: Radiogenic lung cancer: the effects of low doses of low linear energy transfer (LET) radiation 85

Scherb H, Weigelt E: A response to "Perinatal mortality in Bavaria, Germany, after the Chernobyl accident" by Grosche et al. 297
Schimmack W → Bunzl K
Schmid E → Roos H
Schoetzau A → Grosche B
Scholz M, Kellerer AM, Kraft-Weyrather W, Kraft G: Computation of cell survival in heavy ion beams for therapy. The model and its approximation 59
Shchukina NV → Pitkevitch VA
Shi Y → Crompton NEA
Shiryaev VI → Ivanov VK
Sigg M → Crompton NEA
Singh BB → Bhattacharjee D
Sobolev B, Heidenreich WF, Kairo I, Jacob P, Goulko G, Likhtarev I: Thyroid cancer incidence in the Ukraine after the Chernobyl accident: comparison with spontaneous incidences 195
Sobolev BG → Goulko GM
Stabin MG → Hamm RN

Tolstykh EI, Kozheurov VP, Vyushkova OV, Degteva MO: Analysis of strontium metabolism in humans on the basis of the Techa river data 25
Tomita H, Kai M, Kusama T, Ito A: Monte Carlo simulation of DNA strand-break induction in supercoiled plasmid pBR322 DNA from indirect effects 235
Tomita H, Kai M, Kusama T, Ito A: Monte Carlo simulation of physicochemical processes of liquid water radiolysis. The effects of dissolved oxygen and OH scavenger 105
Trott K → Menz R
Tschiersch J → Garger EK
Tsyb AF → Ivanov VK
Tsyb AF → Pitkevitch VA
Turner JE → Hamm RN

van Santen E → Grosche B
Vintersved I → Garger EK
Voigt G → Drozdovitch VV
Vyushkova OV → Tolstykh EI

Wagenpfeil F → Garger EK
Wang Y, Cheong N, Miura M, Iliakis G: Overexpression of insulin-like growth factor (IGF)-I receptor enhances inhibition of DNA replication in mouse cells exposed to x-rays 117
Weigelt E → Scherb H

Zaider M → Rossi HH
Zeeb H, Blettner M: Adult leukaemia: what is the role of currently known risk factors? 217
Zelenka J → Pöschl M

Acknowledgement to referees 71

Book Reviews 8, 24, 96, 168, 242

Editorial 1

First Announcement and Call for Papers 104